

Claims

- [1] A pipe coupling system comprising:
a pipe provided with a flange which is formed by bending an end of the pipe in a direction perpendicular to a circumferential surface thereof;
a swivel nut fitted into the pipe such that a rear end of the swivel nut is locked to the flange of the pipe to prevent separation;
a soft sealing ring provided to come in close contact with the surface of the flange of the pipe; and
a pipe fitting of which a part of a circumferential surface is provided with a male screw such that the male screw is coupled to the swivel nut fitted into the pipe and of which an end surface coming in contact with the soft sealing ring is provided with a support protrusion such that a part of an inner surface of the soft sealing ring coming in close contact with the end surface is supported by the support protrusion.
- [2] The pipe coupling system of claim 1, wherein the flange of the pipe is formed by outwardly expanding once the end of the pipe.
- [3] The pipe coupling system of claim 1, wherein the flange of the pipe is formed in two folds by outwardly expanding the end of the pipe and then inwardly bending again the outwardly expanded end of the pipe.
- [4] The pipe coupling system of claim 1, wherein the swivel nut is provided at a rear end with a stopper which is locked to the flange of the pipe to prevent separation therefrom and which brings the flange of the pipe into close contact with the pipe fitting at the time of screwing to the pipe fitting.
- [5] The pipe coupling system of claim 1, wherein the soft sealing ring is formed in a thin plate shape having both planes.
- [6] The pipe coupling system of claim 5, wherein the support protrusion of the pipe fitting is protruded from the side surface of the pipe fitting by a height smaller than the thickness of the soft sealing ring.
- [7] The pipe coupling system of claim 1, wherein the pipe fitting includes one or more selected from a union, a nipple, a gate valve, a one-touch check valve, an elbow, a T-shaped joint, a Y-shaped joint, a gauge, a flexible pipe, a "+"(cross)-shaped joint, a strainer, a stop valve, an angle valve, a gate valve, and a security valve.
- [8] The pipe coupling system of claim 7, wherein the one-tough check valve comprises:
a valve body formed in a T shape which has an empty space so as to allow fluid to flow horizontally and which has male screws formed at both ends of a

horizontal portion through which the fluid flows;
a disk which is provided at one side of the valve body and which is rotatable about a disk fixing pin in the valve body so as to control the flow of fluid;
a flow control spindle which is provided rotatably in a vertical portion of the valve body so as to open and close the disk with rotation thereof and of which a lower end is bent to one side; and
an eccentric-axis cover which is eccentrically provided in the vertical portion of the valve body and which rotatably supports the flow control spindle.

- [9] The pipe coupling system of claim 8, wherein a valve seat coming in contact with the disk is protruded at one side within the horizontal portion of the valve body.
- [10] The pipe coupling system of claim 8, wherein the eccentric-axis cover is fixed to the vertical portion of the valve body by fitting a fixing nut to a male screw formed in the vertical portion.
- [11] The pipe coupling system of claim 1, wherein the pipe fitting includes:
a nipple of which one end is provided with a male screw and the other end is provided with a coupling portion; and
an insulating ring which is compulsorily inserted and integrally fixed onto the coupling portion of the nipple, which is made of an insulating material, and of which the circumferential surface is provided with a male screw.
- [12] The pipe coupling system of claim 1, wherein a sealing member capable of enhancing a sealing ability is interposed between the swivel nut and the flange of the pipe.